



U.S. Navy Aerial Target Systems

Presented to 45th Annual NDIA Symposium

Captain Pat Buckley
Program Manager
PMA-208, Aerial Target & Decoy Systems
31 October 2007

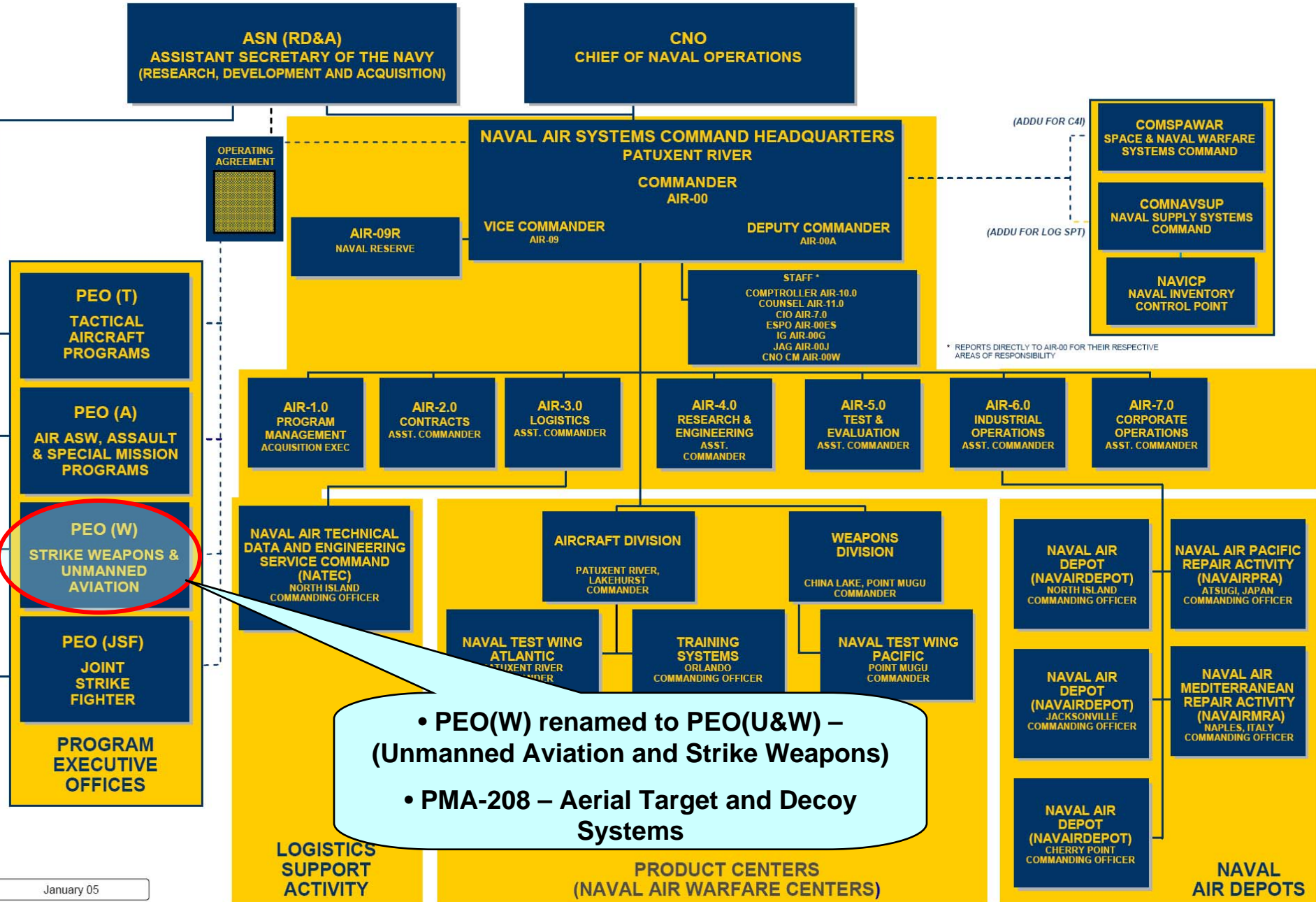


Outline



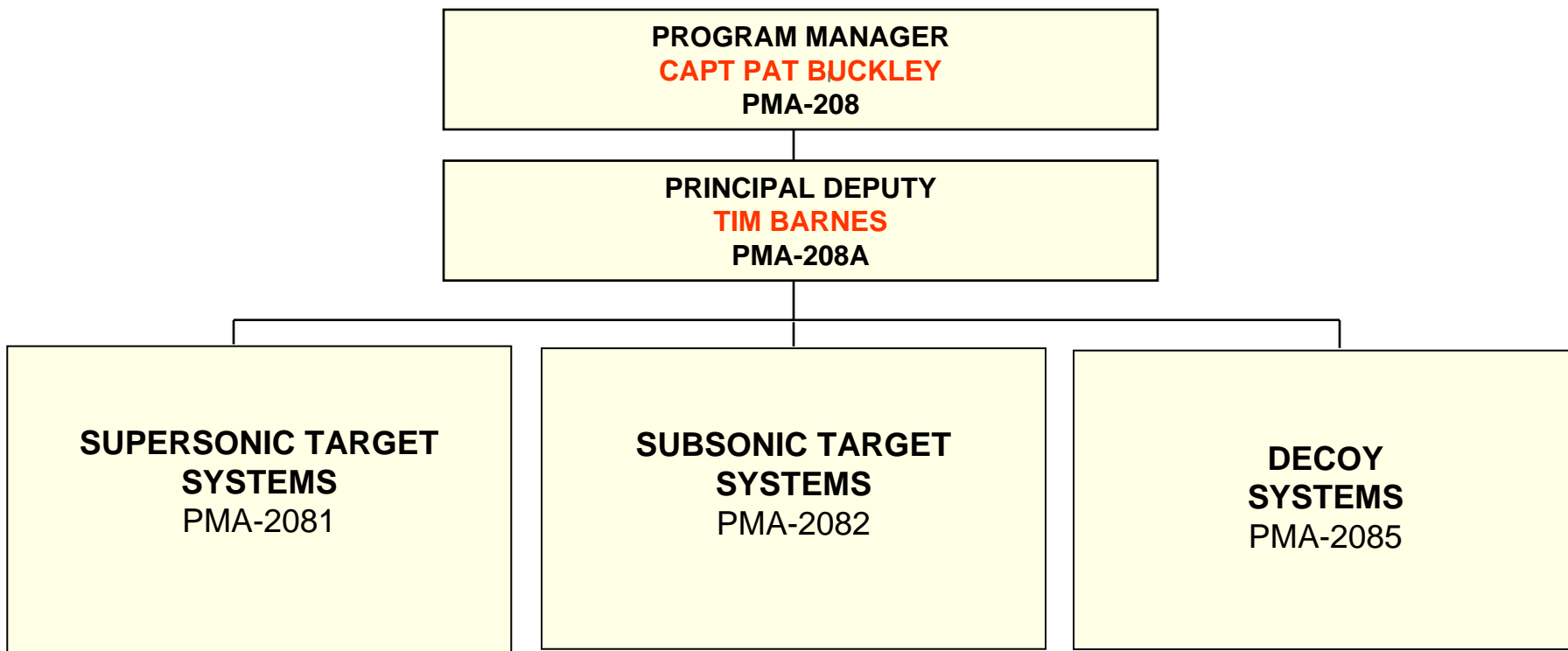
- Organization
- Product Line
- Operating Sites
- Supersonic Targets
- Subsonic Targets
- Full Scale Targets
- Target Control Systems
- Summary

NAV AIR REPORTING RELATIONSHIPS



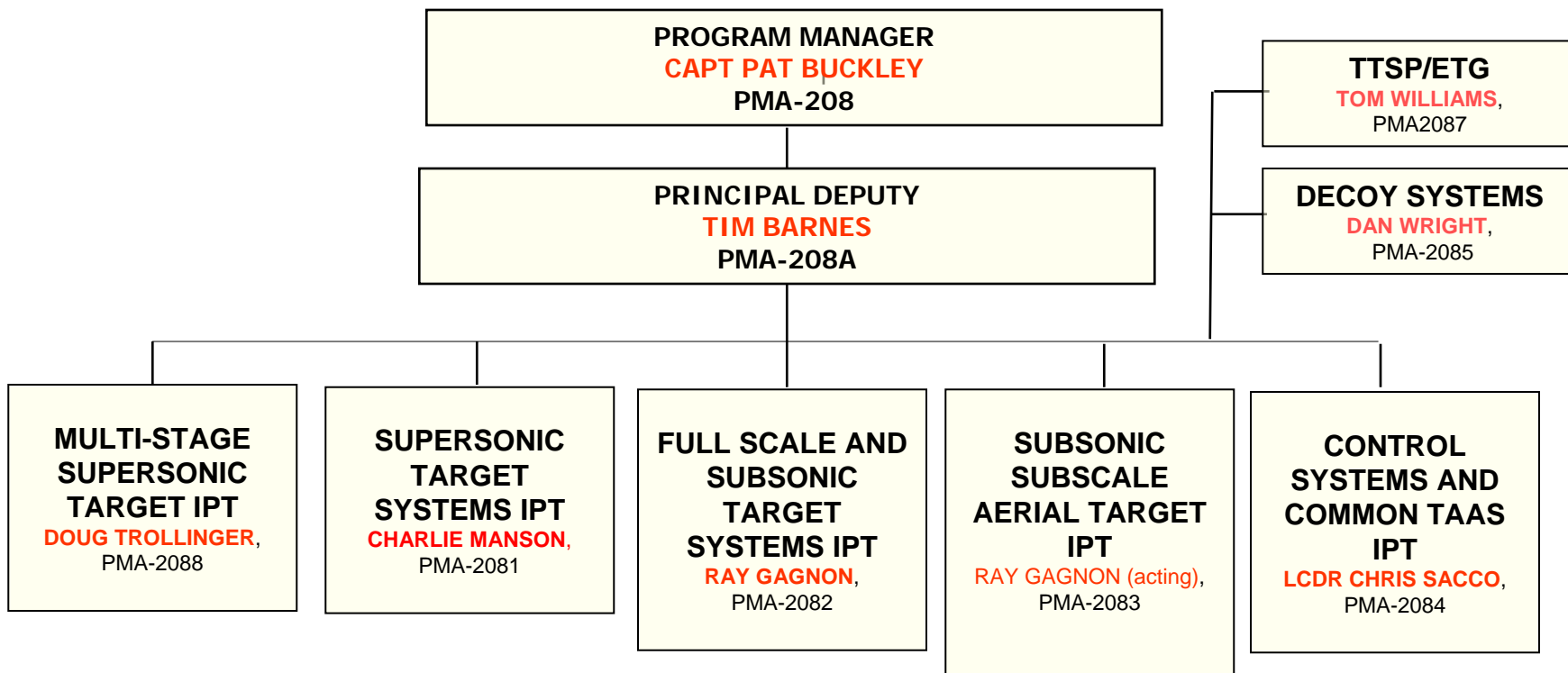


PMA-208 AERIAL TARGET & DECOY SYSTEMS PROGRAM OFFICE 2006





PMA-208 AERIAL TARGET & DECOY SYSTEMS PROGRAM OFFICE 2007





PMA-208 Product Line Fielded



Supersonic



GQM-163A



MA-31



AQM-37C

Full Scale & Subsonic



BQM-34S



BQM-74E

QF-4



Decoys

TALD



ITALD



Miscellaneous



QLT-1C



COMMON
TA/AS



THREAT
SIMULATION



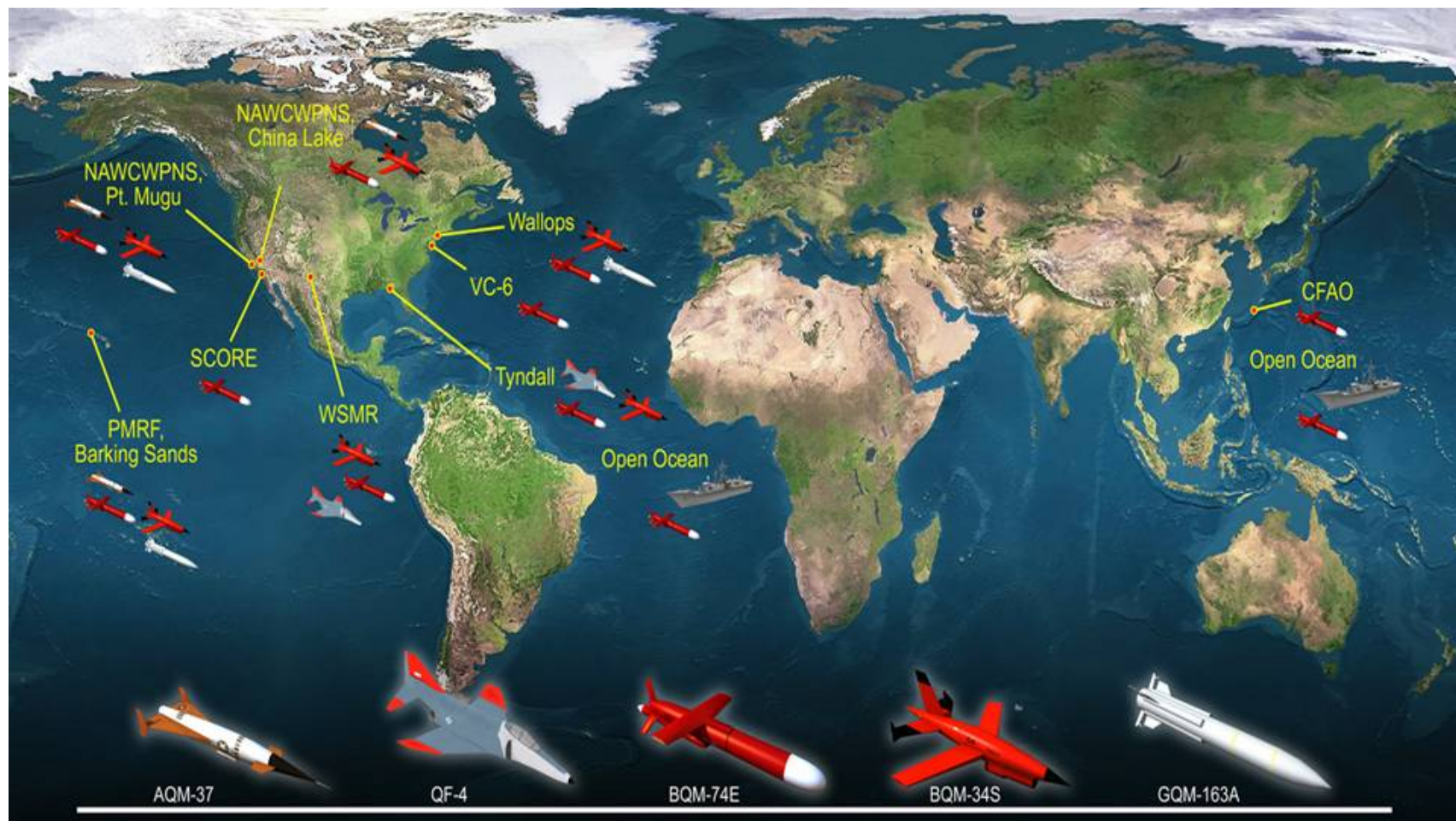
TDU-32



SNTC



Operating Sites



- VC-6 decommissioning in summer of 2008
- NAVAIR to conduct East Coast ops



Supersonic Targets



GQM-163A Supersonic Sea Skimming Target





GQM-163 Program Status

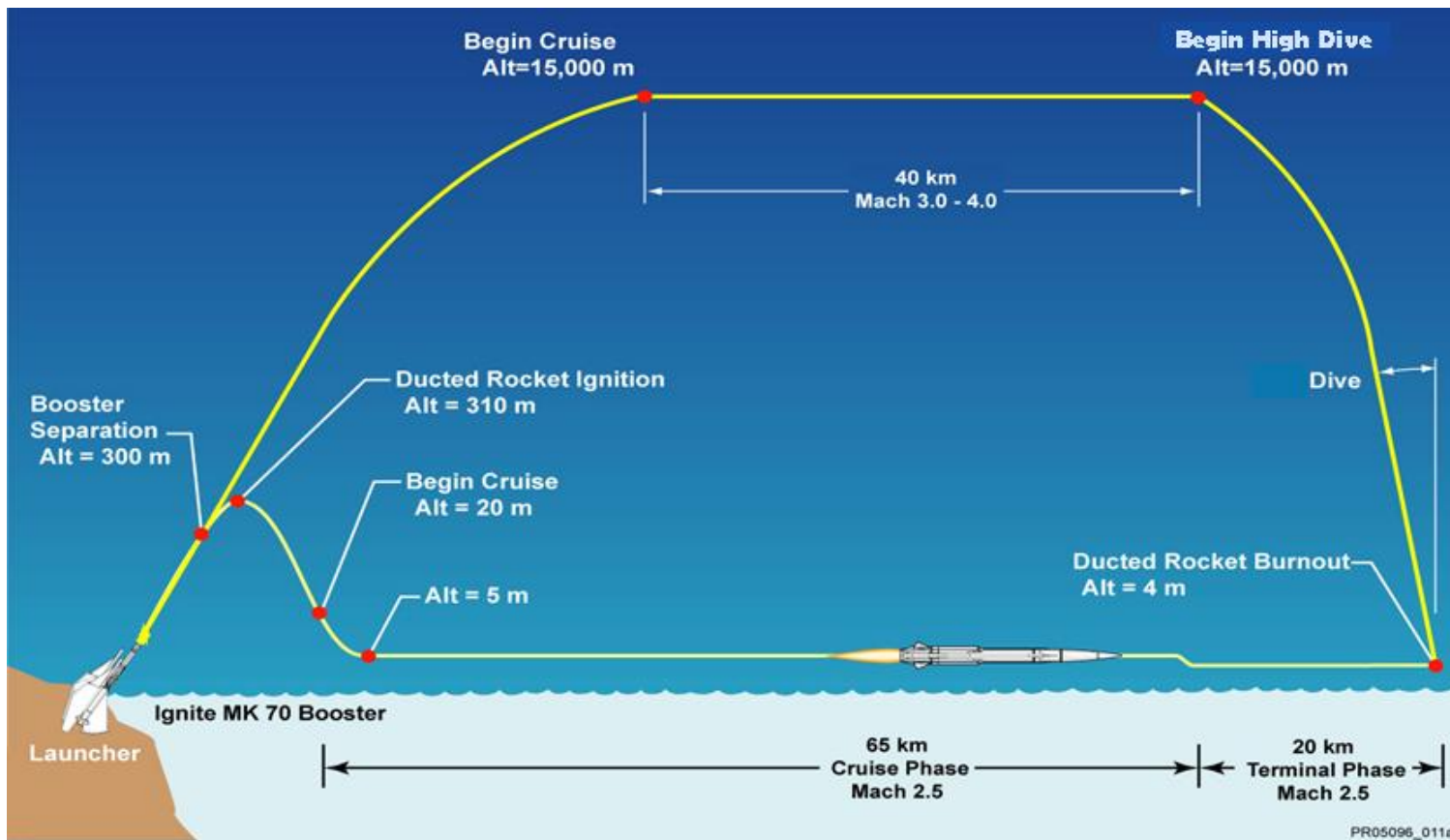


- Operations to date:
 - 6 October 2005; 12 June 2007; 13 June 2007
- FRP-2 contract awarded September 2007
- First Stream Raid OP planned for December 2007
- Plan to award FRP-III Second Quarter FY-08
- Prime Contractor: Orbital Sciences Corporation

GQM-163 Supports Threat A, B & C Requirements



GQM-163A High Diver Initiative



- High Diver development initiated in March 2006
- Demo expected in mid-2008



MA-31





MA-31 Update



- Program initiated via Foreign Comparative Testing (FCT) & Expanded Demonstration Test (EDT) from 1995-2000
- USN contracted with Boeing for the delivery of MA-31 targets in FY2000
 - Executing plan to close out MA-31 procurement contract due to numerous setbacks beyond Navy/Boeing control
- Conducting Joint Navy (LPD-18) & Army (Patriot) operation in December 2007 at Pt. Mugu range with last remaining assets
 - Expecting final contract closeout after the operation



AQM-37



- **Medium to high altitude supersonic cruise with dive capability**
 - Mach 2.0 – 4.0
 - Range 100 mi
 - Altitude 1000 ft – 100 Kft
 - Demonstrated TBM profiles (300 Kft, 120 nmi downrange)
 - F-16 launch platform
- **Out of production system**
 - Last Delivery Dec 2001
- **Conduct approximately 10-15 operations per year (~ half FMS)**
- **Potential high-diver surrogate**
 - Low fidelity





Threat D and Multi-Stage Supersonic Target (MSST)

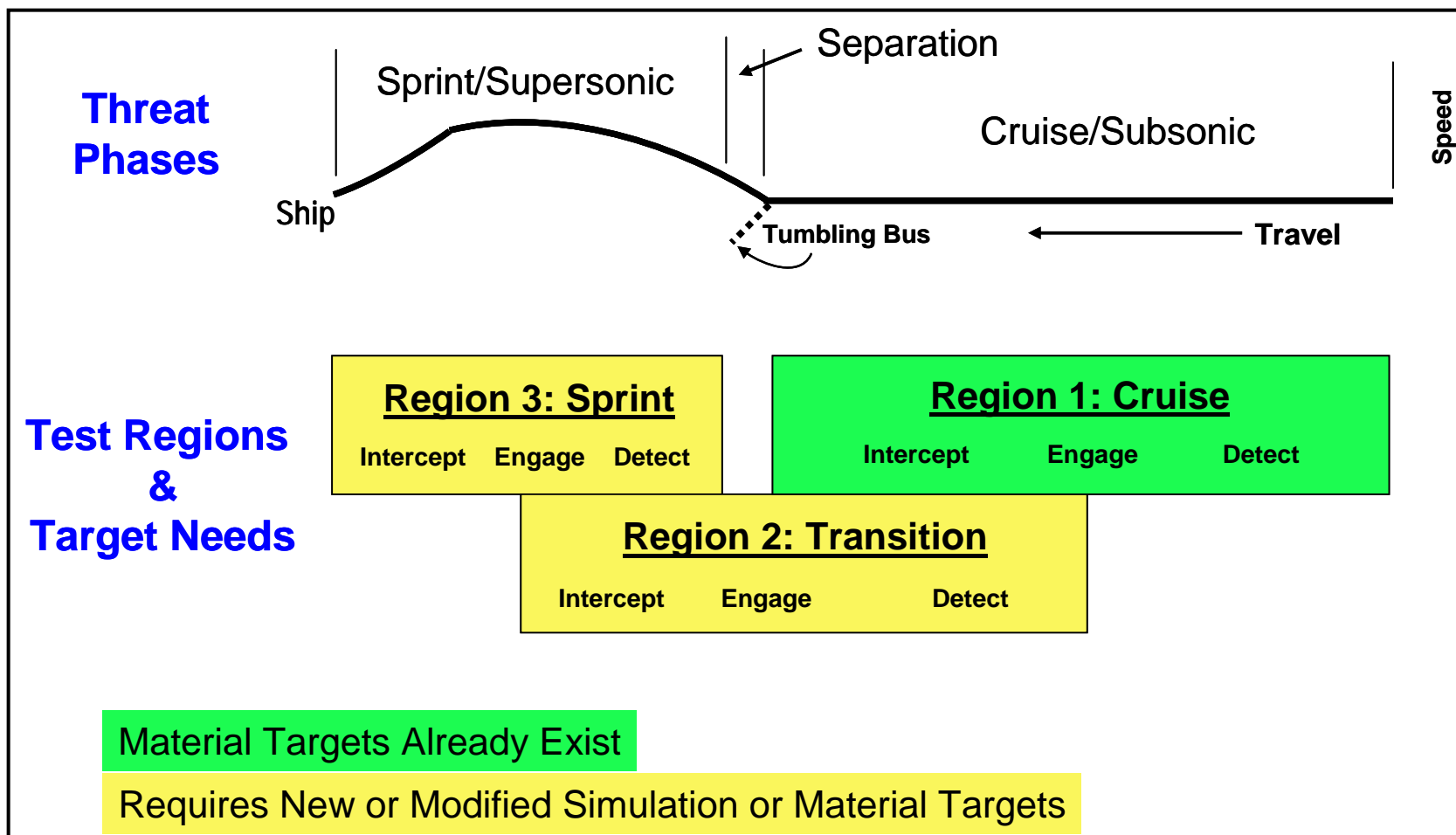


The case for a Threat D target has been kicked around for years . . .



Threat D

- Threat D poses challenging T&E requirements





Multi-Stage Supersonic Target



- Requirement & Resourcing

- Navy did not fund target development in POM-08 budget submission
- DEPSECDEF directed Threat D study. Study completed April 2007
- Study recommended target development. Navy endorsed.
- OSD 3-Star Programmer review supported the development of a Threat D Target
 - Agreed with study conclusions and Navy's recommendation
- October 2007 - CDD in Final Navy review, approval anticipated mid-November 2007

- Acquisition

- PMA-208 MSST team stood up in May 2007
- Draft RFP posted 25 July 2007
- Industry Day held 31 July 2007
- Planning to release Request For Proposal (RFP) in November 2007
- Anticipating 4.5 year System Development & Demonstration effort, with follow-on contract for Low Rate Initial Production and Full Rate Production
 - Planning to award SDD contract in FY08



Supersonic Summary



- GQM-163 Coyote in production
 - Meets Threat A, B, & C SSST requirements
 - Superb performance. Coyote will be long term workhorse for SSST mission
 - GQM-163 high dive capability being developed
- MA-31
 - Last assets will be expended in December 2007
 - Program to be completed
- AQM-37
 - Potential near-term high diver surrogate
- Multi-Stage Supersonic Target
 - Navy Team stood up May 2007
 - CDD in final approval process
 - RFP release planned for November 2007
 - Anticipated contract award 3rd quarter FY08



Subsonic Targets



BQM-34S



- **Sustainment**
 - Maintain required inventory
- **Missions**
 - Low fidelity A/C simulator
 - T&E workhorse – special configurations
 - Harpoon Seeker integration
- **Product Improvements**
 - UIAU integration:
 - Replace existing autopilots with UIAU from BQM-74
 - Common avionics, radar altimeter, Support Equipment with current production BQM-74E
 - Reduced logistics
 - Avoid obsolescence
 - Allows for performance growth if required
 - LACE
 - PAWN
- **Prime contractor – Northrop Grumman**

Current Inventory ~ 200

FY06 Ops/Expenditures – 19/2

FY07 Ops/Expenditures – 14/3





BQM-74E



- **Production**

- Procurement rate 60/yr
- Training and T&E workhorse

- **Missions:**

- High fidelity Anti-Ship Cruise Missile (ASCM) Surrogate
- Low-fidelity A/C simulator
 - Altitude: 7 ft – 40 Kft
 - Endurance: 68 min
 - Ground Launch; Shipboard Launch;
 - Air Launch: C-130, Gulfstream, F-16

- **Product improvements**

- Programmable semi-autonomous waypoint navigation
 - Selectable Lost Carrier Sensitivity from waypoint to waypoint
 - Return to Recovery Area
 - FY08 limited fielding planned

- **Prime contractor – Northrop Grumman**

Current Inventory ~ 265

FY06 Ops/Expenditures – 235/62

FY07 Ops/Expenditures – 158/52





Subscale Subsonic Aerial Target (SSAT)



- Need for a high fidelity subsonic target vehicle that meets Navy requirements
- Performance requirements being validated
- Considering full and open competition for a fly-off
 - Opportunity for Navy to evaluate SSAT candidates
 - Potential for RFP release in late FY08/early FY09
 - Potential multiple award in FY09 for fly-off
 - Down select to single source for production



Alternative Subsonic Flight Demonstration



- Navy strategy to “open aperture” to explore wider range of subsonic targets that may fulfill Navy needs
 - Goal is to ensure long-term best value – performance & affordability
 - Demonstration initiative underway
- Contract competitively awarded to Composite Engineering, Inc. (CEi) of Sacramento, CA in September 06
 - Design based on Air Force BQM-167A
 - Five flight demonstrations planned
 - First flight 26 September
 - Second flight planned for 31 October



Subsonic Targets Summary



- ASCM Threat capabilities drive Navy subsonic target requirements
- BQM-34 still a viable system
 - Existing inventory will last indefinitely at current usage rate
- BQM-74E remains Navy workhorse
 - Relatively low cost
 - Shipboard & air launch capable
- Follow-on subsonic target needed to meet current requirements

Navy pursuing strategy to identify tomorrow's subsonic target



Full Scale Targets



QF-4/QF-16



- QF-4
 - Operating at Tyndall & White Sands Test Ranges
 - Air Force existing contract runs thru Lot 15 (FY09)
 - Plan to award new contract for two Lots in FY-10 & FY11
 - Last deliveries in FY13 from procurements in FY-11
- AST QF-16
 - Replacement for the QF-4
 - Air Force lead program
 - Navy providing requirements inputs and funding
 - IOC 3QFY15
 - ~15 years of production at 25 A/C per year



Mobile Land Targets

- **Requirement**
 - Fast, highly maneuverable, threat representative vehicles for aircrew training
 - Enable JTACS & aircrew to identify & engage moving targets not normally associated with traditional enemy forces
- **FY08 Planning**
 - Low Rate Initial Production award
 - ‘Kit’ concept
 - Vehicle
 - New or used
 - Control System
 - Autonomous or remote controlled

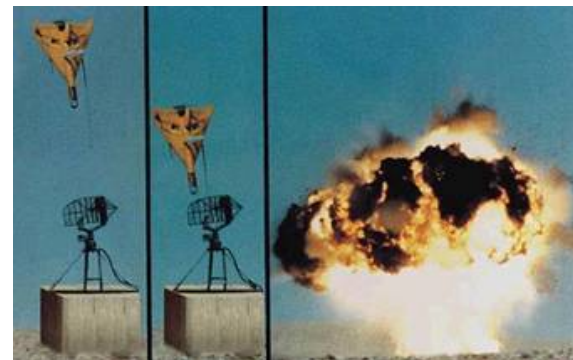




UAV Target



- Requirement
 - Provide the Navy/Marine Corps a test capability to represent an attack UAV that can:
 - Loiter above the battlefield
 - Search and home in on specified targets/ signals
 - Dives $\sim 90^\circ$ on the target
 - Detonate high explosives
- No existing targets are threat representative
- Working with requirements office to formalize requirement





Target Control System



System for Naval Target Control

UHF 360 – 380 MHz



Current: SNTC System



- UHF 435–450 MHz
- Single Frequency at a time
- BQM-74/BQM-34 capable/HSMST/QST-35 Sea-borne Targets
- Low transponder cost
- 200 nmi line of sight
- 330 nmi via Relay
- Training/T&E

Future: SNTC System UHF 360-380 MHz Upgrade

- Recommended primary user status by Navy Marine Corp. Spectrum Center (NMSC)
 - 250-300 KHz bandwidth available to accommodate full scale capability and future system growth

- UHF 360-380 MHz
- Changes Freq to avoid interference
- BQM-74/BQM-34 capable
- HSMST/QST-35 Sea-borne targets capable
- Low transponder cost
- 200 nmi line of sight
- 330 nmi via Relay
- Training/T&E



Target System Challenges

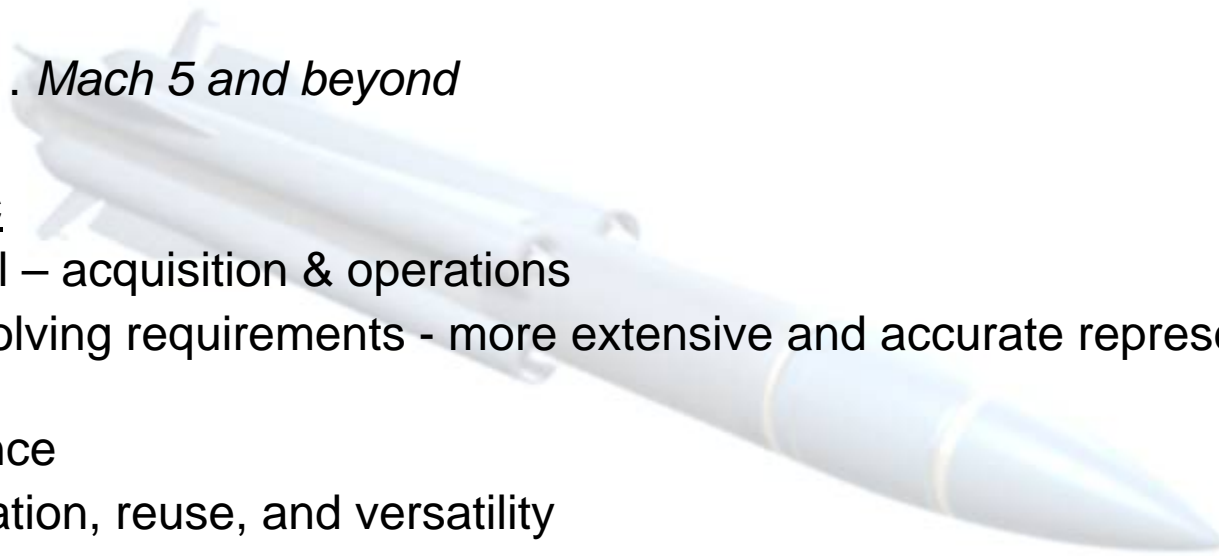


Evolution of the threats

- Supersonic dive
- Asymmetric threats
- Enhanced threat capability
- Stealth
- Scramjet . . . *Mach 5 and beyond*

Programmatic

- Cost control – acquisition & operations
- Meeting evolving requirements - more extensive and accurate representation of threat
- Obsolescence
- Reconfiguration, reuse, and versatility
- Inventory management





The Way Ahead

The threats will continue to evolve. The Navy Target Team will continue to work with all stakeholders to provide required threat representations to meet the needs of developmental testing, operational evaluation and Fleet training.



Teaming with our Industry partners and Service counterparts is key to our continued success



Back-Ups

